

IN THE CLAIMS:

1. (Currently Amended) A system with a mobile micro-robot for use inside an animal body during minimally invasive surgery, comprising:

a laparoscopic surgical tool, wherein the micro-robot is adapted to fit through a port of the laparoscopic surgical tool;

[[-]]a body for incorporating components of the micro-robot;

[[-]]a mobilization element coupled to the body for moving the body of the micro-robot within the animal body;

[[-]]a controller for controlling remotely the mobilization element;

[[-]]an actuator coupled to the controller and mobilization element, the actuator configured to provide movement to the mobilization element based on input from the controller;

~~-a manipulator arm extending from the body of the micro-robot, the manipulator arm having a free end defining a tip and being movable to assist in surgical tasks;~~

[[-]]a power supply adapted to power the actuator ~~and the manipulator arm;~~ and

at least one device selected from (i) a manipulator arm extending from the body of the micro-robot, the manipulator arm having a free end defining a tip and being movable to assist in surgical tasks and (ii) [[-]]at least one sensor proximate the body of the micro-robot for monitoring at least one parameter within the animal body.

2. (Canceled)

3. (Currently Amended) The ~~mobile micro-robot~~ system of claim 1, wherein the body is shaped like a cylinder.

4. (Currently Amended) The ~~mobile micro-robot~~ system of claim 1, wherein the mobilization element is selected from at least one member of the group consisting of wheels, tracks, legs, and portions of the body capable of contortion.

5. (Currently Amended) The ~~mobile-micro-robot~~ system of claim 1, wherein the mobilization element is one or more wheels.

6. (Currently Amended) The ~~mobile-micro-robot~~ system of claim 5, wherein the one or more wheels have treads.

7-8. (Canceled)

9. (Currently Amended) The ~~mobile-micro-robot~~ system of claim 1, further comprising a transmitter and a receiver for sending data and inputting command signals between the micro-robot and a remote location.

10-15. (Canceled)

16. (Currently Amended) The ~~mobile-micro-robot~~ system of claim 1, wherein the at least one device includes the at least one sensor that is selected from at least one member of the group consisting of a camera, an imaging device, a pH sensor, a temperature sensor, a sensor to detect gasses, a sensor to detect electrical potential, a sensor to detect heart rate, a sensor to detect respiration rate, a sensor to detect humidity, and a sensor to detect blood.

17. (Currently Amended) The ~~mobile-micro-robot~~ system of claim 1, wherein the at least one device includes the at least one sensor that comprises an imaging device.

18. (Currently Amended) The ~~mobile-micro-robot~~ system of claim 1, wherein the mobile micro-robot is wireless.

19-22. (Canceled)

23. (Currently Amended) The ~~mobile micro-robot~~ system of claim 17, wherein the imaging device is movable relative to the body of the micro-robot to adjust a position of the imaging device.

24. (Currently Amended) The ~~mobile micro-robot~~ system of claim 23, wherein the position is pan, tilt or combinations thereof.

25. (Currently Amended) The ~~mobile micro-robot~~ system of claim 1, wherein the at least one device includes the manipulator arm that is articulated and is movable at joints along a length thereof to enable multiple degrees of movement of the tip.

26. (Currently Amended) A mobile micro-robot for use inside an animal body during minimally invasive surgery, comprising:

a body for incorporating components of the micro-robot;

at least one device selected from (i) a manipulator arm extending from the body of the micro-robot, the manipulator arm having a free end defining a tip and being movable to assist in surgical tasks and (ii) at least one sensor proximate the body of the micro-robot for monitoring at least one parameter within the animal body; and

a mobilization assembly coupled to the body for actively moving the body of the micro-robot during surgery along a surface within an open space inside the animal body, wherein the mobilization assembly ~~and the manipulator arm are~~ is remotely controlled.

27. (Currently Amended) A method of performing minimally invasive surgery inside an animal body, comprising:

performing an incision in the animal body;

implanting a micro-robot through the incision into an open space inside the animal body, the micro-robot having a remotely controllable mobilization assembly[[.]] and at least one device selected from (i) a remotely controllable manipulator arm for performing a surgical task and (ii) a sensor for monitoring at least parameter within the animal body; and

actively moving the micro-robot along a surface inside the animal body within the open space by operation of the mobilization assembly;

~~monitoring at least one parameter within the animal body with the sensor; and
performing a surgical task by operation of the manipulator arm.~~

28. (Currently Amended) The method of claim 27, further comprising ~~wherein the monitoring comprises viewing images within the animal body~~ with the sensor.

29. (New) The method of claim 27, further comprising viewing images within the animal body with the sensor and performing a surgical task by operation of the manipulator arm.

30. (New) The method of claim 27, wherein implanting the micro-robot includes disposing the micro-robot within a cavity external to organs of the animal body, the cavity selected from at least one of an abdominal cavity, a pelvic cavity and a thoracic cavity.

31. (New) The method of claim 27, wherein implanting the micro-robot includes disposing the micro-robot outside of a gastrointestinal tract.

32. (New) The mobile micro-robot of claim 26, wherein the mobilization assembly is adapted for use within a cavity external to organs of the animal body, the cavity selected from at least one of an abdominal cavity, a pelvic cavity and a thoracic cavity.

33. (New) The mobile micro-robot of claim 26, wherein the open space is inside an abdominal cavity.

34. (New) The mobile micro-robot of claim 26, wherein the open space is outside of a gastrointestinal tract.

35. (New) The mobile micro-robot of claim 26, wherein the mobilization element comprises two wheels disposed at each end of the body that includes a member disposed between the two wheels and extending away from the body in a direction substantially perpendicular to an axis of rotation of the two wheels.

36. (New) The mobile micro-robot of claim 35, wherein the two wheels have treads.

37. (New) The mobile micro-robot of claim 26, wherein the at least one device includes the manipulator arm that is articulated and is movable at joints along a length thereof to enable multiple degrees of movement of the tip and the at least one sensor that comprises an imaging device.